

(i) a cleaning gas controller for introducing a cleaning gas into the reaction chamber and evacuating the reaction chamber after the cleaning treatment;

(ii) a cleaning gas activator for activating the cleaning gas in radical form; and

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(iii) a temperature and timing controller comprising a program including a cleaning sequence which is activated after completion of film formation, said cleaning sequence programmed to (1) introduce an inert gas to the reaction chamber during step (2), (2) reduce the temperature of the susceptor to a cleaning temperature at a predetermined rate for cleaning, at the predetermined pressure by the inert gas, wherein the cleaning temperature settings are limited to about 470°C or lower, (3) when reaching a cleaning temperature of about 470°C or lower which is pre-selected for preventing accumulation of particles on the showerhead during the cleaning process, actuate the cleaning gas controller and the cleaning gas activator, and (4) evacuate the reaction chamber.

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**Please add the following claim:**

21. (New) A thin film forming apparatus comprising:

a reaction chamber for forming a thin film on a workpiece at a film formation temperature of 500°C or higher, said reaction chamber comprising a susceptor on which the workpiece is placed; and a showerhead from which a gas is introduced in the reaction chamber; and

a cleaning device for cleaning unwanted deposits adhering to the inside of the reaction chamber, said cleaning device comprising:

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(i) a cleaning gas controller for introducing a cleaning gas into the reaction chamber and evacuating the reaction chamber after the cleaning treatment;

(ii) a cleaning gas activator for activating the cleaning gas in radical form; and

(iii) a temperature and timing controller comprising a program including a cleaning sequence which is activated after completion of film formation, said cleaning sequence programmed to (1) introduce an inert gas to the reaction chamber while reducing the temperature of the susceptor, (2) when reaching a pre-selected temperature of the susceptor which is about 470°C or lower, actuate the cleaning gas controller and the cleaning gas activator, said temperature being pre-selected to prevent accumulation of particles on the showerhead during the cleaning process, and (3) evacuate the reaction chamber.